

ABSTRACT

Disclosed is an anode-supported flat-tubular solid oxide fuel cell stack, which includes an anode-supported tube having semi-cylinder parts and plate parts, thereby securing a combined structure of a tube-type and a plate-type anode-supported body, and a method of fabricating the same. The anode-supported flat-tubular solid oxide fuel cell stack includes a plurality of fuel cells and a plurality of connector plates. Each of the fuel cells includes a supported tube having the semi-cylinder parts and plate parts, a connector coated on an upper plate of the supported tube as a way to be positioned at the center of the upper plate, an electrolyte layer partly coated on an external surface of the supported tube except for a portion of the supported tube coming into contact with the connector, and an air electrode coated on an external surface of the electrolyte layer. Additionally, each of the connector plates includes a lower connector plate, one or more middle connector plates, and an upper connector plate. In this regard, a plurality of gas channels are formed on the middle and lower connector plates. Therefore, the anode-supported flat-tubular solid oxide fuel cell stack has advantages of a large capacity, an improved power density, mass production, and reduced production costs.